

REMARKS

The present application was filed on July 7, 2003 with claims 1 through 23. Claim 24 was added in the Amendment and Response to Office Action dated December 16, 2008. Claims 1 through 24 are presently pending in the above-identified patent application.

In the Office Action, the Examiner rejected claims 1-4, 21 and 22 under 35 U.S.C. §103(a) as being unpatentable over Devi (United States Patent Publication No. 2003/0147400; hereinafter Devi), in view of Aukia et al. (United States Patent Number 6,594,268; hereinafter Aukia). The Examiner rejected claims 5, 7-9, 13 and 16 under 35 U.S.C. §103(a) as being unpatentable over Devi in view of Aukia, and further in view of Szviovski et al. (United States Patent Number 6,956,821; hereinafter Szviovski), and rejected claim 23 under 35 U.S.C. §103(a) as being unpatentable over Szviovski and in view of Shabtay et al. (United States Patent Number 6,895,441; hereinafter Shabtay). The Examiner indicated that claims 10-12, 14, 15, and 17-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

Independent Claims 1, 21 and 22

Independent claims 1, 21, and 22 were rejected under 35 U.S.C. §103(a) as being unpatentable over Devi, in view of Aukia et al. Regarding claim 1, the Examiner asserts that Devi discloses determining, in response to a request, whether any path of a plurality of predetermined paths between a source node and a destination node meets at least one requirement corresponding to the request, wherein the plurality of predetermined paths are determined by substantially maximizing a carried demand on a network using at least traffic demand estimates, network topology information, and by performing routing for the substantially maximized carried demand (FIGS. 1 and 2; paragraphs [0004]-[0005], [0014], [0026], and [0028]-[0029]). The Examiner previously asserted that measuring current load at a source (or at a router between source and destination) is well-known and required for routing estimation which is inherent on Devi's method, Aukia clearly discloses the combination of the traffic demand estimation, network topology information, and current load measurement (col. 21, lines 23-51; and col. 10, lines 24-33).

In the Response to Arguments section of the present Office Action, the Examiner asserts that Devi discloses selecting one of said predetermined paths between a source node and a destination node based on a current load measurement (paragraphs [0018]-[0019] and [0047]-[0049]).

Applicants note that independent claims 1, 21, and 22 require determining, in response to a request, whether any path of a plurality of predetermined paths between a source node and a destination node meets at least one requirement corresponding to the request, wherein the plurality of predetermined paths are determined by substantially maximizing a carried demand on a network using at least traffic demand estimates and network topology information, and by performing routing for the substantially maximized carried demand; and *selecting one of said predetermined paths based on a current load measurement, wherein said current load measurement is measured at a source node*, if a given path meeting the at least one requirement is found. Support for this limitation can be found on page 3, line 24, to page 4, line 20; page 5, line 28, to page 6, line 10; and page 17, line 22, to page 18, line 14, of the originally filed disclosure.

Applicants note that Devi does *not* disclose or suggest *selecting one of said predetermined paths between a source node and a destination node based on a current load measurement, wherein said current load measurement is measured at a source node*. Applicants also note that, as the Examiner acknowledges, Aukia discloses a technique similar to OSPF and teaches that each node in the network determines, in a distributed manner, *the path for the source-destination pair that traverses the node*; OSPF does not teach that a current load measured at a source node can be used to select a predetermined path or to select a path from a source node to a destination node. (See, Abstract and Summary of the Invention.) Aukia does not use a *current load measurement is measured at a source node* to select a predetermined path or to select a path that starts at a source node and ends at a destination node. Neither Devi nor Aukia disclose or suggest *selecting a predetermined path (between a source node and a destination node) based on a current load measurement measured at a source node*.

In the Response to Arguments section of the final Office Action, the Examiner asserts that Applicant's argument presented above relies on a feature, i.e., OSPF, that is not recited in the claims. Applicants note, to the contrary, that the feature being relied upon is the

feature of selecting one of said predetermined paths between a source node and a destination node based on a current load measurement, wherein said current load measurement is measured at a source node. Since Aukia teaches OSPF and since OSPF requires that each node in the network determines, in a distributed manner, the path for the source-destination pair that traverses the node, Aukia does not disclose or suggest a predetermined path between a source node and a destination node, does not disclose or suggest selecting a predetermined path, and does not disclose or suggest selecting a predetermined path between a source node and a destination node.

Thus, even as combined in the manner suggested by the Examiner, Devi and Aukia do not teach every element of the independent claims. Furthermore, based on the KSR considerations discussed hereinafter, the combination/modification suggested by the Examiner is not appropriate.

KSR Considerations

An Examiner must establish “an apparent reason to combine ... known elements.” *KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. ___, 82 USPQ2d 1385 (2007). Here, the Examiner merely states that it would have been obvious to incorporate the well-known technique of measuring a current load at a router (or source node) which is responsible to forward and/or send packets to the destination as taught by Aukia to the optimization method based on demand estimate and network topology information as disclosed by Devi for the purpose of maximizing revenue based on current and past history of data traffic of a router.

Applicants, however, are claiming a new technique for traffic engineering in a network-based communication system wherein a predetermined path (between a source node and a destination node) is selected from a plurality of predetermined paths based on a current load measurement measured at a source node. There is no suggestion in Devi or in Aukia, alone or in combination, to select a predetermined path (between a source node and a destination node) from a plurality of predetermined paths based on a current load measurement measured at a source node.

Aukia’s teaching to have each node along a path compute its own route teaches away from the present invention’s. The KSR Court discussed in some detail *United States v. Adams*, 383 U.S. 39 (1966), stating in part that in that case, “[t]he Court relied upon the corollary

principle that when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious.” (KSR Opinion at p. 12). Thus, there is no reason to make the asserted combination/modification.

Thus, Devi and Aukia, alone or in combination, do not disclose or suggest
5 determining, in response to a request, whether any path of a plurality of predetermined paths between a source node and a destination node meets at least one requirement corresponding to the request, wherein the plurality of predetermined paths are determined by substantially maximizing a carried demand on a network using at least traffic demand estimates and network topology information, and by performing routing for the substantially maximized carried
10 demand; and selecting one of said predetermined paths based on a current load measurement, wherein said current load measurement is measured at a source node, if a given path meeting the at least one requirement is found, as required by independent claims 1, 21, and 22.

Independent Claim 23

Independent claim 23 was rejected under 35 U.S.C. §103(a) as being unpatentable
15 over Szviatovszki in view of Shabtay. Regarding claim 23, the Examiner asserts that Szviatovszki discloses, if a length of the second shortest path is equivalent to a length of the first shortest path, attempting to create a connection on the second shortest path (col. 12, lines 37-43). The Examiner acknowledges Szviatovszki does not disclose, but asserts that Shabtay discloses that, if a length of the second shortest path is not equivalent to a length of the first shortest path,
20 performing the following steps (col. 5, lines 18-19; col. 4, lines 14-21; col. 5, lines 12-22; and col. 4, lines 35-42 and 61-67): pruning edges not having a second available bandwidth from the first pruned network, thereby creating a second pruned network (col. 5, lines 19-22); computing a third shortest path between the source node and destination node using the second pruned network (col. 5, lines 19-22); and attempting to create a connection on the third shortest path
25 (col. 5, lines 19-22). The Examiner previously asserted that “the length information is provided by OSPF protocol, or that it is combined by bandwidth availability information of the links to utilize rerouting mechanism.” In the Response to Arguments section of the final Office Action, the Examiner asserts that the length information is considered as the length of a path as being smaller or smallest. The Examiner asserts that Applicant should clarify what the length
30 information represents in the claim and should explain the differences between the Shortest Path

and the length information.

Applicants note that the word “length” is defined as “the longest extent of anything as measured from end to end.” (See, dictionary.com.) In the text cited by the Examiner, Szviatovszki teaches that, “if two paths have different, highest-affected priority levels, the path with the lower priority level is chosen. But if the affected priority levels are the same, the ‘smaller’ path is selected with the lowest pre-empted bandwidth on the highest affected priority level.” (Col. 12, lines 37-43; emphasis added.) Contary to the Examiner’s assertion, Szviatovszki does *not* disclose or suggest length information; Szviatovszki discloses priority levels and pre-empted bandwidth. Also, contrary to the Examiner’s assertion, Applicants could find *no* disclosure or suggestion of *length information* in Shabtay. Applicants also find no disclosure or suggestion that the length information is provided by the OSPF protocol, or that it is combined by bandwidth availability information of the links to utilize a rerouting mechanism.

Thus, Szviatovszki and Shabtay, alone or in combination, do not disclose or suggest a length of a second shortest path, as required by independent claim 23.

Dependent Claims 2-22 and 24

Claims 2-22 and 24 are dependent on independent claim 1 and are therefore patentably distinguished over Devi, Aukia, Shabtay, and Szviatovszki, alone or in combination, because of their dependency from independent claim 1 for the reasons set forth above, as well as other elements these claims add in combination to their base claim. The Examiner has already indicated that claims 10-12, 14, 15, and 17-20 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

Conclusion

All of the pending claims, i.e., claims 1-23, are in condition for allowance and such favorable action is earnestly solicited.

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

The Examiner's attention to this matter is appreciated.

Respectfully submitted,

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